RBI - Technical Services

Reg. No. 290202107599 [MICRO/SERVICES]

Road - Building - Irrigation Material Testing Laboratory

NABL Accredited Laboratory as per ISO/IEC 17025-2005

Managing Director - P. Munikrishnappa, B.E., (Civil) M.I.E. K.E.S.

ISO 9001 - 2015 Certified

To,

Executive Engineer,
Byatarayanapura Division,
BBMP, Bangalore.

Sir,

Sub:-Submission of Quality Control Report, Regarding.

We are submitting here with the Quality Control Reports for the Reserved Quantities, for the work of **Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.**

Executed by the Agency, **Sri. G. N. Ramesh**

Yours sincerely

P.MUNIKRISHANAPPA,
B.E, MIE, KES, MIRC, MIIBE
Proprietor
RBI TECHNICAL SERVICES

RBI TECHNICAL SERVICES * Bangalore * Sign.....

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd State, Bengaluru - 560 104. Tel. : 080 - 23300857
Cell : 9448352709 Email : rbitc2@gmail.com

1st & Part Bill Reserved quantities

Quality Control Report For

Coarse and Fine Aggregate, Cement , M20 Cubes, GSB, BM

RBI - Technical Services

Reg. No. 290202107599 [MICRO/SERVICES]

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Managing Director - P. Munikrishnappa, B.E., (Civil) M.I.E. K.E.S.

ISO 9001 - 2015 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/004 **Date:18.10.2017**

TEST REPORT

Client Name & address* : Executive Engineer,
Byatarayanapura Division, BBMP.

Name of Work* : Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.

Name of the test : Sieve Analysis

Method of test : IS : 2386 Part 1 -1963 RA-2011

Type of Aggregate : Coarse Aggregates (40mm down size)

Date of Testing : 17.10.2017

Total Wt. of Aggregates taken in gms= **15000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits as per IS 383-1970 (RA-2011)
63	0	0	0	100	100
40	488	3.25	3.25	96.75	95-100
20	4368	29.12	32.37	67.63	30-70
10	6947	46.31	78.69	21.31	10-35
4.75	2761	18.41	97.09	2.91	0-5

* Information is furnished by the Customer/Representative

Note:

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RBI -Technical Services
(CONSULTANT)

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

RBI TECHNICAL SERVICES

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ISO 9001 - 2015 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/004 Date:18.10.2017

TEST REPORT

Client Name & address* : Executive Engineer, Byatarayanapura Division, BBMP.

Name of Work* : Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.

Name of the test : Sieve Analysis

Method of test : IS : 2386 Part 1 -1963 RA-2011

Type of Aggregate : Coarse Aggregates (20mm down size)

Date of Testing : 17.10.2017

Total Wt. of Aggregates taken in gms= **10000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits as per IS 383-1970 (RA-2011)
40	0	0	0	100	100
20	470	4.70	4.70	95.30	95-100
10	5265	52.65	57.35	42.65	25-55
4.75	3570	35.70	93.05	6.95	0-10

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RBI -Technical Services
(CONSULTANT)

Assistant Engineer

Assistant Executive Engineer
Kodigehalli Sub Divisio
Yelahanka Zone, B.B.M.
Bangalore.

RBI-TECHNICAL SERVICES

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Managing Director - P. Munikrishnappa, B.E., (Civil) M.I.E. K.E.S.

ISO 9001 - 2015 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/004 Date:19.10.2017

TEST REPORT

Client Name & address* : Executive Engineer, Byatarayanapura Division, BBMP.

Name of Work* : Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.

Name of the test : Sieve Analysis

Method of test : IS : 2386 Part 1 -1963 RA-2011

Type of Aggregate : Fine Aggregates (Sand)

Date of Testing : 18.10.2017

Total Wt. of Aggregates taken in gms= 500

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits as per IS 383-1970 (RA-2011) For Zone-II
10	0	0	0	100	100
4.75	21.45	4.29	4.29	95.7	90-100
2.36	53.24	10.65	14.94	85.1	75-100
1.18	124.56	24.91	39.85	60.2	55-90
0.6	81.54	16.31	56.16	43.8	35-59
0.3	101.45	20.29	76.45	23.6	8-30
0.15	87.46	17.49	93.94	6.1	0-10

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RBI -Technical Services
(CONSULTANT)

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer
Kodigehalli Sub Division.
Yelahanka Zone, B.B.M.P
Bangalore.

for RBI-TECHNICAL SERVICES

Proprietor

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ISO 9001 - 2015 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/004 **Date:20.10.2017**

TEST REPORT

Client Name & address* : Executive Engineer,
Byatarayanapura Division, BBMP.

Name of Work* : Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.

Method of test : IS-4031 (Part -5), (Part - 4), (Part - 6) 1988 (RA-2009)

Type of Sample : Cement, OPC 43 grade

Date of Testing : 17.10.2017 to 20.10.2017

PHYSICAL PROPERTIES

Sl.No	Name of the test	Test Results	Requirements as per IS: 8112-1989
1	Consistancy	30.50%	Not Mentioned
2	Initial Setting Time	150 minutes	Not Less than 30 Minutes
3	Final Setting Time	390 minutes	Not More than 600 Minutes
4	Compressive Strength		
	3 Days (72 hrs)	25.5 Mpa	Shall not be less than 23.0 Mpa

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(CONSULTANT)

Assistant Engineer

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
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or RBI-TECHNICAL SERVICES

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Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/001 **Date:** 20.11.2017

TEST REPORT

***Client Name & address** : Executive Engineer,
Byatarayanapura Division, BBMP.

Name of Work* : Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.

Name of Test : Compressive strength of concrete cubes (for 28 days)

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

No. of CubesTested : 3 No.s

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M20

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)	Average Compressive strength (N/mm^2)
1	23.10.2017	20.11.2017	8.060	508.0	22.58	22.93
2	23.10.2017	20.11.2017	8.095	516.0	22.93	
3	23.10.2017	20.11.2017	8.195	524.0	23.29	

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RBI -Technical Services
(CONSULTANT)

Assistant Engineer

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Kodigehalli Sub Divisio
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Bangalore.

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Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 Date:04.10.2017

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GRADATION FOR GSB
MORTH TABLE-400-11

Name of the Work: Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.

Client: Executive Engineer, Byatarayanapura Division, BBMP.

Source of Sample: On site

Date of Testing: 03.10.2017

Material: Close - Graded Granular Sub-Base, Grading II

Oven dry Wt.(gms) **10000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	MORTH Specifications Table 400-1.
53	0	0	0	100	100
26.5	446	4.46	4.25	95.75	70-100
9.5	3226	3230.46	32.3	67.7	50-80
4.75	2075	5305.46	53.1	46.9	40-65
2.36	1270	6575.46	65.8	34.2	30-50
0.425	1291	7866.46	78.7	21.3	15-25
0.075	1154	9020.46	90.2	9.8	3-10

Note: 1) The results indicated above are based on the tests carried out on the samples received in the laboratory.

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(CONSULTANT)
for RBI-TECHNICAL SERVICES
Proprietor

Assistant Engineer

Assistant Executive Engineer
Assistant Executive Engineer,
Kodigehalli Sub Division,
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Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 Date:04.10.2017

RBI- Technical Services

GRADATION FOR GSB
MORTH TABLE-400-11

Name of the Work Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.

Client Executive Engineer,
Byatarayanapura Division, BBMP.

Source of Sample On site

Date of Testing 03.10.2017

Material Close - Graded Granular Sub-Base, Grading II

Oven dry Wt.(gms) **10000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	MORTH Specifications Table 400-1.
53	0	0	0	100	100
26.5	460	4.6	4.55	95.45	70-100
9.5	3364	3368.6	33.7	66.3	50-80
4.75	2193	5561.6	55.6	44.4	40-65
2.36	1329	6890.6	68.9	31.1	30-50
0.425	1520	8410.6	84.1	15.9	15-25
0.075	1005	9415.6	94.2	5.8	3-10

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RBI -Technical Services
(CONSULTANT)
Proprietor

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer
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Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 **Date:04.10.2017**

RBI- Technical Services

GRADATION FOR GSB
MORTH TABLE-400-11

Name of the Work **Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.**

Client **Executive Engineer, Byatarayanapura Division, BBMP.**

Source of Sample **On site**

Date of Testing **03.10.2017**

Material **Close - Graded Granular Sub-Base, Grading II**

Oven dry Wt.(gms) **10000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	MORTH Specifications Table 400-1.
53	0	0	0	100	100
26.5	425	4.25	4.55	95.45	70-100
9.5	3205	3209.25	32.1	67.9	50-80
4.75	2261	5470.25	54.7	45.3	40-65
2.36	1293	6763.25	67.6	32.4	30-50
0.425	1425	8188.25	81.9	18.1	15-25
0.075	1126	9314.25	93.1	6.9	3-10

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For RBI-TECHNICAL SERVICES
RBI -Technical Services
(CONSULTANT)
Proprietor

Assistant Engineer

Assistant Executive Engineer
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GRADATION FOR GSB
MORTH TABLE-400-11

Name of the Work Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.

Client Executive Engineer,
Byatarayanapura Division, BBMP.

Source of Sample On site

Date of Testing 03.10.2017

Material Close - Graded Granular Sub-Base, Grading II

Oven dry Wt.(gms) **10000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	MORTH Specifications Table 400-1.
53	0	0	0	100	100
26.5	444	4.44	4.55	95.45	70-100
9.5	3172	3176.44	31.8	68.2	50-80
4.75	2323	5499.44	55.0	45.0	40-65
2.36	1315	6814.44	68.1	31.9	30-50
0.425	1569	8383.44	83.8	16.2	15-25
0.075	1214	9597.44	96.0	4.0	3-10

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RBI-Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES
Proprietor

Assistant Engineer

Assistant Executive Engineer
Executive Engineer
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Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 **Date:04.10.2017**

RBI- Technical Services

ATTERBERG LIMITS TEST FOR GSB
MORTH TABLE-400-13

Client	:	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of Work	:	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
Source of Sample	:	Onsite
Date of Sample Testing	:	**03.10.2017 to 04.10.2017**
Material	:	**Close - Graded Granular Sub-Base, Grading II**

Sl. No.	Name of Test	Test Method	Test Results
1	Liquid Limit	IS : 2720-1985 Part 5 RA : 2010	23.50%
3	Plasticity index	IS : 2720-1985 Part 5 RA : 2010	NP

Remarks:

1 Results relate only to the sample (s) under test in as received condition and applicable parameter (s).

2 The sample will be stored upto one month from the date of issue of test report unless otherwise specified.

RBI -Technical Services
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Assistant Engineer

Assistant Executive Engineer

Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P.
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Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 **Date:04.10.2017**

RBI- Technical Services

ATTERBERG LIMITS TEST FOR GSB
MORTH TABLE-400-13

Client	:	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of Work	:	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
Source of Sample	:	Onsite
Date of Sample Testing	:	**03.10.2017 to 04.10.2017**
Material	:	**Close - Graded Granular Sub-Base, Grading II**

Sl. No.	Name of Test	Test Method	Test Results
1	Liquid Limit	IS : 2720-1985 Part 5 RA : 2010	24.00%
3	Plasticity index	IS : 2720-1985 Part 5 RA : 2010	NP

Remarks:

1 Results relate only to the sample (s) under test in as received condition and applicable parameter (s).

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RBI -Technical Services
(CONSULTANT)

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer.
Kodigehalli Sub Division.
Yelahanka Zone, B.B.M.P
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ISO 9001 - 2015 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 Date:10.11.2017

RBI- Technical Services

Aggregate Gradation Test

IS : 2386 Part I

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	**Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.**
Type of Mix	**Bituminous Macadam**
Source of Sample	Hot Mix Plant
Date of Testing	**09.11.2017**

Total Weight of Sample: **5000**

SIEVE SIZE, mm	Weight Retained, gm	Cummulative Weight retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
26.5	0	0	0	100	100	Bituminous Macadam Grade-II specification as per MORTH
19	475	9.50	9.50	90.50	90 - 100	
13.2	1705	34.10	43.60	56.40	56 - 88	
4.75	1310	26.20	69.80	30.20	16 - 36	
2.36	750	15.00	84.80	15.20	4-19	
0.3	555	11.10	95.90	4.10	2-10	
0.075	160	3.20	99.10	0.90	0-8	

Total Weight of Sample: **5000** gms

SIEVE SIZE, mm	Weight Retained, gm	Cummulative Weight retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
26.5	0	0	0	100	100	Bituminous Macadam Grade-II specification as per MORTH
19	445	8.90	8.90	91.10	90 - 100	
13.2	1500	30.00	38.90	61.10	56 - 88	
4.75	1365	27.30	66.20	33.80	16 - 36	
2.36	825	16.50	82.70	17.30	4-19	
0.3	550	11.00	93.70	6.30	2-10	
0.075	200	4.00	97.70	2.30	0-8	

Note: 1) The results indicated above are based on the tests carried out on the samples received in the laboratory.
2) Any Query regarding the report must be reported immediately.

RBI-TECHNICAL SERVICES

Proprietor

RBI -Technical Services
(CONSULTANT)

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd State, Bengaluru - 560 104. Tel. : 080 - 23000857
Cell : 9448352709 Email : rbitc2@gmail.com

RBI - Technical Services

Reg. No. 290202107599 [MICRO/SERVICES]

Road - Building - Irrigation Material Testing Laboratory

NABL Accredited Laboratory as per ISO/IEC 17025-2005

Managing Director - P. Munikrishnappa, B.E., (Civil) M.I.E. K.E.S.

ISO 9001 - 2015 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 Date:10.11.2017

RBI- Technical Services

Aggregate Impact Value

IS: 2386 Part IV

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
Type of Mix	**Bituminous Macadam**
Source of Sample	Hot Mix Plant
Date of Testing	**09.11.2017**

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	383	
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	86.5	85.6	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297.5	296.9	
4	Aggregate Impact value = percent fines			
	100* (W_2/W_1) percent	22.58	22.35	
				22.47

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

Note: 1) The results indicated above are based on the tests carried out on the samples received in the laboratory.

2)Any Query regarding the report must be reported immediately.

RBI -Technical Services
(CONSULTANT)

Assistant Engineer

Assistant Executive Engineer

RBI TECHNICAL SERVICES

Proprietor

Assistant Executive Engineer
Kodigehalli Sub Division.
Yelahanka Zone, B.B.M.P.
Bangalore.

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ISO 9001 - 2015 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 **Date:18.10.2017**

TEST REPORT

Client	:	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
Name of the work	:	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
Source of Sample	:	Hot Mix Plant
Date of Testing	:	16.10.2017

The results of the tests conducted on the **Bitumen VG-30** sample using for Bituminous Macadam collected from the contractor's plant are as follows:

Sl.No	Description	Test Result	Requirement as per IS:73:2013 for Paving Bitumen
1	Penetration at 25^{0}c, 1/10 mm,100g.5s	50	Min, 45
2	Softening point, ^{0}c	52	Min. 47
3	Flash Point, ^{0}c	245	Min. 220
4	Ductility at 25^{0}c, cm Min	100	40

⇒ *The results indicated above are based on the tests carried out on the samples received in the laboratory.*

⇒ *Any Query regarding the report must be reported immediately.*

for RBI-TECHNICAL SERVICES

Proprietor

RBI -Technical Services

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd State, Bengaluru - 560 104. Tel. : 080 - 23300857

Cell : 9448352709 Email : rbitc2@gmail.com

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017

Date:10.11.2017

Aggregate Shape Test
IS: 2386 Part I

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
Type of Mix	**Bituminous Macadam**
Source of Sample	Hot Mix Plant
Date of Testing	**09.11.2017**

Size of Aggregates		Weight of Fraction consisting of atleast 200 pieces, g		Thickness guage size, mm	Weight of aggregate in each fraction passing thickness guage, g		Length guage size, mm	Weight of aggregate in each fraction retained on length guage, g	
Passing through IS sieve, mm	Retained on IS sieve, mm								
63	50	W_1	0	23.9	w_1	0	--	x_1	0
50	40	W_2	0	27	w_2	0	81	x_2	0
40	25	W_3	0	19.5	w_3	0	58	x_3	0
31.5	25	W_4	0	16.95	w_4	0	--	x_4	0
25	20	W_5	0	13.5	w_5	0	40.5	x_5	0
20	16	W_6	1820	10.8	w_6	165	32.4	x_6	160
16	12.5	W_7	1495	8.55	w_7	150	25.5	x_7	110
12.5	10	W_8	820	6.75	w_8	110	20.2	x_8	105
10	6.3	W_9	145	4.89	w_9	15	14.7	x_9	5

Flakiness Index 10.28%

Elongation Index 8.88%

Combined Flakiness & Elongation Index 19.16%

Comments:

→ Maximum allowable Combined Flakiness and Elongation Index for Bituminous Macadam is 30%

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES
Proprietor

Assistant Engineer

Assistant Executive Engineer
Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

RBI - Technical Services

Reg. No. 290202107599 [MICRO/SERVICES]

Road - Building - Irrigation Material Testing Laboratory

NABL Accredited Laboratory as per ISO/IEC 17025-2005

Managing Director - P. Munikrishnappa, B.E., (Civil) M.I.E. K.E.S.

ISO 9001 - 2015 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 Date: 19.10.2017

RBI- Technical Services

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
Type of Mix	**Bituminous Macadam**
Source of Sample	Hot Mix Plant
Date of Testing	**16.10.2017 to 19.10.2017**

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2420	2420	2420	
2	Weight of basket suspended in water	W_2 g	1220	1220	1220	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1200	1200	1200	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2010	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	815	810	820	
6	Weight of oven dried aggregate	W_4 g	2005	2001	2009	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.46	2.47	2.45	2.455
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.491	2.498	2.483	2.487
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.45%	0.55%	0.52%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

Note: 1) The results indicated above are based on the tests carried out on the samples received in the laboratory.
2)Any Query regarding the report must be reported immediately.

RBI -Technical Services
(CONSULTANT)
Proprietor

Assistant Engineer

Assistant Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P.
Bangalore.

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Cell : 9448352709 Email : rbitc2@gmail.com

SY & JAK

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MIX

CLIENT	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
NAME OF THE WORK	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
AGENCY	Sri. G.N Ramesh
TYPE OF MIX	Bituminous Macadam
DATE OF TESTING	13.11.2017

Vehicle no:

Description	Trail 1	Trail 2
1. Weight of Bitumen mix taken before extraction (W1) gms	500	500
2. Weight of Bitumen mix taken after extraction (W2) gms	483	484
Difference in weight after extraction (W3) gms= (W1-W2)	17.00	16.00
4. Percentage of bitumen in mix = (W3/W1)* 100 (%)	3.40	3.20
5. Average in %	**3.30**	

For RBI - Technical Services

Aravinath. D

Site E...

NDP

AE(Ret)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MIX

CLIENT	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
NAME OF THE WORK	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
AGENCY	Sri. G.N Ramesh
TYPE OF MIX	Bituminous Macadam
DATE OF TESTING	13.11.2017

Vehicle no:

Description	Trail 1	Trail 2
1. Weight of Bitumen mix taken before extraction (W1) gms	500	500
2. Weight of Bitumen mix taken after extraction (W2) gms	482	484
Difference in weight after extraction (W3) gms= (W1-W2)	18.00	16.00
4. Percentage of bitumen in mix = (W3/W1)* 100 (%)	3.60	3.20
5. Average in %	**3.40**	

For RBI - Technical Services

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MIX

CLIENT	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
NAME OF THE WORK	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
AGENCY	Sri. G.N Ramesh
TYPE OF MIX	Bituminous Macadam
DATE OF TESTING	13.11.2017

Vehicle no:

Description	Trail 1	Trail 2
1. Weight of Bitumen mix taken before extraction (W1) gms	500	500
2. Weight of Bitumen mix taken after extraction (W2) gms	482	484
Difference in weight after extraction (W3) gms= (W1-W2)	18.00	16.00
4. Percentage of bitumen in mix = (W3/W1)* 100 (%)	3.60	3.20
5. Average in %	**3.40**	

For RBI - Technical Services

Deepnath.D

Site I...

NDD

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P
Bangalore.

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MIX

CLIENT	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
NAME OF THE WORK	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
AGENCY	Sri. G.N Ramesh
TYPE OF MIX	Bituminous Macadam
DATE OF TESTING	13.11.2017

Vehicle no:

Description	Trail 1	Trail 2
1. Weight of Bitumen mix taken before extraction (W1) gms	500	500
2. Weight of Bitumen mix taken after extraction (W2) gms	482	484
Difference in weight after extraction (W3) gms= (W1-W2)	18.00	16.00
4. Percentage of bitumen in mix = (W3/W1)* 100 (%)	3.60	3.20
5. Average in %	**3.40**	

For RBI - Technical Services
Aeenash.D
Site

NOP
AE(Tech)

Assistant Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P
Bangalore.

3rd part

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MIX

CLIENT	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
NAME OF THE WORK	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
AGENCY	Sri. G.N Ramesh
TYPE OF MIX	Bituminous Macadam
DATE OF TESTING	28.04.2018

Vehicle no:

Description	Trail 1	Trail 2
1. Weight of Bitumen mix taken before extraction (W1) gms	500	500
2. Weight of Bitumen mix taken after extraction (W2) gms	482	484
Difference in weight after extraction (W3) gms= (W1-W2)	18.00	16.00
4. Percentage of bitumen in mix = (W3/W1)* 100 (%)	3.73	3.20
5. Average in %	**3.47**	

For RBI - Technical Services

Site Engineer

NDP

Assistant Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P.
Bangalore.

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MIX

CLIENT	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
NAME OF THE WORK	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
AGENCY	Sri. G.N Ramesh
TYPE OF MIX	Bituminous Macadam
DATE OF TESTING	28.04.2018

Vehicle no:

Description	Trail 1	Trail 2
1. Weight of Bitumen mix taken before extraction (W1) gms	500	500
2. Weight of Bitumen mix taken after extraction (W2) gms	483	484
Difference in weight after extraction (W3) gms= (W1-W2)	17.00	16.00
4. Percentage of bitumen in mix = (W3/W1)* 100 (%)	3.40	3.20
5. Average in %	**3.30**	

For RBI - Technical Services

Site Eng

Assistant Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P
Bangalore.

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MIX

CLIENT	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
NAME OF THE WORK	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
AGENCY	Sri. G.N Ramesh
TYPE OF MIX	Bituminous Macadam
DATE OF TESTING	28.04.2018

Vehicle no:

Description	Trail 1	Trail 2
1. Weight of Bitumen mix taken before extraction (W1) gms	500	500
2. Weight of Bitumen mix taken after extraction (W2) gms	482	484
Difference in weight after extraction (W3) gms= (W1-W2)	18.00	16.00
4. Percentage of bitumen in mix = (W3/W1)* 100 (%)	3.60	3.20
5. Average in %	**3.40**	

For RBI - Technical Services

Site E

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MIX

CLIENT	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
NAME OF THE WORK	Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.
AGENCY	Sri. G.N Ramesh
TYPE OF MIX	Bituminous Macadam
DATE OF TESTING	28.04.2018

Vehicle no:

Description	Trail 1	Trail 2
1. Weight of Bitumen mix taken before extraction (W1) gms	500	500
2. Weight of Bitumen mix taken after extraction (W2) gms	482	484
Difference in weight after extraction (W3) gms= (W1-W2)	18.00	16.00
4. Percentage of bitumen in mix = (W3/W1)* 100 (%)	3.60	3.20
5. Average in %	**3.40**	

For RBI - Technical Services

Aravinash.D
Site Engineer

NDP
be(wt)